REMARKS

By this amendment, claims 11, 14-17 and 19 have been amended. Thus, claims 11-19 are now active in the application. Reexamination and reconsideration of the application are respectfully requested.

On pages 2-5 of the final Office Action mailed March 9, 2006, claims 11, 12 and 14 were rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as being obvious over Hofmann et al. (U.S. 4,398,775); claims 13 and 17-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hofmann et al. in view of Lindrose et al. (U.S. 6,113,277); and claims 13, 15 and 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hofmann et al. in view of Albrecht et al. (U.S. 5,768,060). These rejections are believed moot in view of the amendments to the independent claims. Furthermore, these rejections are believed clearly inapplicable to the present claims, for the following reasons.

With exemplary reference to the drawing figures, new independent claim 11 sets forth a bearing device 15 comprising: a first bearing 201 having a first retainer (one end of element 200) with a center axis along a bearing center axis; and a second bearing (202) having a second retainer (other end of element 200) with a center axis along the bearing center axis; wherein the first and second bearings 201, 202 are arranged one upon another in an axial direction along the bearing center axis; wherein a plurality of first grooves 211-213 are provided at an outer periphery of the first retainer and are arranged to have balls 231-233 disposed therein, respectively; wherein a plurality of second grooves (e.g. 221 and 222) are provided at an outer periphery of the second retainer and are arranged to have balls 241-243 disposed therein, respectively; wherein the first bearing 201 includes a first inner ring 301 to support inner sides of the first balls 231-233, and a first outer ring 303 to support outer sides of the first balls 231-233; wherein the second bearing 202 includes a second inner ring 302 to support inner sides of the second balls 241-243, and a second outer ring 304 to support outer sides of the second balls 241-243; wherein the first and second inner rings 301, 302 are separate and discrete members (see Fig. 6A); wherein the first and second outer rings 303, 304 are separate and discrete members (see Fig. 6A); wherein the plurality of first grooves 211-213 is constituted by N first grooves, and

the plurality of second grooves is constituted by N second grooves; wherein the first grooves, when viewed along a direction of the bearing center axis, are circumferentially angularly spaced apart by angular intervals of 360/N degrees (e.g. by 120 degrees when N = 3); wherein the second grooves, when viewed along the direction of the bearing center axis, are circumferentially angularly spaced apart by angular intervals of 360/N degrees (e.g. 120 degrees when N = 3); and wherein the first and second grooves, when viewed together along the direction of the bearing center axis, are circumferentially angularly spaced apart by angular intervals of 360/(2N) degrees (e.g. by 60 degrees when N = 3), and such that first radial line segments 251-253 respectively connecting the center axis of the first retainer with centers of the first grooves 211-213 do not overlap with second radial line segments (e.g. 261 and 262) respectively connecting the center axis of the second retainer with centers of the second grooves (e.g. 221, 222).

This bearing device according to claim 11 is of a construction for which the number of balls can be reduced if desired and the elastic deformation load of the balls can be reduced and also, the generation of noise by the bearing can be reduced. Further, since the number of balls can be reduced, the diameter of the bearing can be reduced and, since the preload can be lowered, the starting torque can be lowered and it is thereby possible to realize a bearing device that provides for high-speed response as well as power-savings (see page 4, lines 5-14 of the specification).

In contrast to the present invention of claim 11, the Hofmann et al. patent (U.S. 4,398,775) discloses a bearing device having an upper bearing section and a lower bearing section which include upper and lower portions of a cage (i.e. a retainer) 6, but the Hofmann et al. patent does not disclose or suggest the particular arrangement of grooves required by claim 11.

Although in the Hofmann et al. patent it is described that the pockets that receive the balls 4 and 5 can be angularly offset from one another (see column 3, lines 35-40), there is no disclosure or suggestion that the upper grooves are circumferentially angularly spaced apart by angular intervals of 360/N degrees and that the lower grooves are circumferentially angularly spaced apart by angular intervals of 360/N degrees, and further the first and second grooves,

when viewed together along the direction of the bearing center axis, are circumferentially angularly spaced apart by angular intervals of 360/(2N) degrees, and such that the first radial line segments respectively connecting the center axis of the first retainer with centers of the upper grooves do not overlap with the second radial line segments respectively connecting the center axis of the second retainer with centers of the lower grooves, as is required by claim 11.

The Hofmann et al. patent mentions that the pockets for receiving the balls can be angularly offset from one another, but does not provide any teaching or suggestion of the specific arrangement of the grooves for receiving the balls as specified in claim 11. Thus, the advantages obtained by the present invention of claim 11 are not contemplated in the Hofmann et al. patent.

In the final Office Action, the Examiner recognized that the Hofmann et al. patent does not disclose the particularly-claimed arrangement of the grooves (and thus of the balls when disposed in the grooves) (see the last four lines of page 2 and the first line of page 3 of the Office Action). However, the Examiner took the position that, despite the fact that Hofmann et al. does not disclose the particular arrangement of the grooves as required by claim 11, "[A]s Hofmann does not disclose that the angular offset is unequal, this would anticipate an equal spacing of the teeth (i.e., groove) and balls. Similarly as there is no disclosure in Hofmann that the spacing of the balls have unequal angular spacing, this would inherently include an equal spacing of the balls at 360/Number of balls." In other words, the Examiner took the position that, since the Hofmann et al. reference does not disclose that the angular offset is unequal, it can be assumed that is equal. It is respectfully submitted, however, that the Examiner's legal conclusion in this regard that the feature is inherent in the Hofmann et al. patent is incorrect.

That is, with reference to M.P.E.P. § 2112, "[T]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993)."

The Examiner took the alternative position that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to have equal spacing of the balls of each row of balls, because this is notoriously old and well known in the art. Moreover, the

staggering or angular offset of the adjacent row of balls to be between the adjacent row at the angle of 360/2N, is further obvious to one of ordinary skill in the art because this would have permitted maximum saving of space." This position by the Examiner is also respectfully traversed. There is no showing in the prior art of record that the particular arrangements suggested by the Examiner would have been obvious to a person of ordinary skill in the art in the environment of the Hofmann et al. bearing. With reference to M.P.E.P. § 2143.03, "[T]o establish *prima facie* obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." Further, "it is never appropriate to rely solely on 'common knowledge' in the art without evidentiary support in the record, as the principle evidence upon which a rejection was based." *In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ 2d 1693, 1697 (Fed. Cir. 2001).

Accordingly, for the above reasons, it is submitted that the present invention as recited in claim 11 is not disclosed or suggested by the Hofmann et al. patent and would not have been obvious to a person of ordinary skill in the art in view of the Hofmann et al. patent.

Furthermore, claim 11 has now been amended to require a first bearing 201 to include a first inner ring 301 to support inner sides of the first balls 231-233, and a first outer ring 303 to support outer sides of the first balls 231-233, that the second bearing 202 includes a second inner ring 302 to support inner sides of the second balls 241-243, and a second outer ring 304 to support outer sides of the second balls 241-243, and that the first and second inner ring 301, 302 are separate and discrete members, and that the first and second outer rings 303, 304 are separate and discrete members. These features of the present invention as now presented in independent claim 11 are also clearly not disclosed or suggested in the Hofmann et al. patent.

More specifically, in the embodiment shown in Fig. 1 of Hofmann et al., only one outer ring 7 is provided and, in the embodiment of Fig. 3 of Hofmann et al., only one inner ring 21 is provided. Thus, in the Hofmann et al. embodiments, either the inner sides of the balls or the outer sides of the balls are supported by two separate rings, and the other of the inner sides of the balls and the outer sides of the balls are supported by a single ring (i.e., in the embodiment of Fig. 1 of Hoffman et al., the inner sides of the balls are supported by the two separate rings 2, 3,

and the outer sides of the balls are supported by the single outer ring 7). This arrangement enables convenient accessability for demounting the bearing (see, for example, column 3, lines 14-17 and column 3, lines 45-51). Thus, for these additional reasons, it is further submitted that claim 11 is not taught or suggested by the Hofmann et al. patent and is not obvious in view of the Hofmann et al. patent.

The Examiner cited the Lindrose et al. patent for disclosing "a bearing device in which first and second bearings are arranged one upon another in an axial direction, where the number of balls in each row of the retainer is three." Further, the Examiner cited the Albrecht et al. patent for disclosing "a bearing assembly in which the number of balls is three," wherein contact surfaces of the grooves of inner and outer races are provided with a radius of curvature that is greater than the radius of the balls. However, these patents additionally cited by the Examiner clearly provide no teaching or suggestion that would have obviated the above-discussed shortcomings of the Hofmann et al. patent.

Accordingly, for the above reasons, it is believed clear that claim 11 is not anticipated by the Hofmann et al. patent. Furthermore, also for the above reasons, the prior art of record provides no teaching or suggestion that would have motivated a person of ordinary skill in the art to modify the Hofmann et al. arrangement or to make any combination of the references of record in such a manner as to result in or otherwise render obvious the present invention of claim 11. Therefore, it is respectfully submitted that claim 11, as well as claims 12 and 13 which depend therefrom, are clearly allowable over the prior art of record.

Independent claim 14 is also directed to a bearing device, and the bearing device of claim 14 requires all of the particulars of the independent claim 11, and further specifies the inclusion of the balls, as well as an inner sleeve that supports an inner ring, and an outer sleeve that supports an outer ring. Independent claim 17 is directed to a head support device that comprises a bearing device including all of the limitations of claim 15, and claim 19 is directed to a recording/reproducing device that also comprises a bearing device having all of the particular features as recited in claim 15. Accordingly, it is respectfully submitted that independent claims

14, 17 and 19, as well as the claims depending therefrom, are clearly allowable over the prior art of record for the same reasons as set forth above in support of claim 11.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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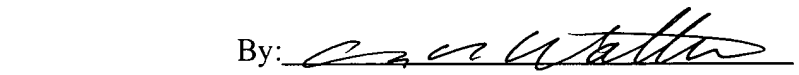
By: 

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June 8, 2006